

Notice of Allowability

Application No.

09/907,252

Applicant(s)

ZALEVSKY ET AL.

Examiner

Kevin S Wood

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the applicant's amendment filed 3 September 2003.
2. ☒ The allowed claim(s) is/are 2,3,6-15,17-44,46-54 and 56-60.
3. ☒ The drawings filed on 17 July 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892) | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 4 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____ |
| 5 <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. <u>0102</u> | 6 <input type="checkbox"/> Examiner's Amendment/Comment |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |

Ben Heaf
Examiner
Art Unit 2874

DETAILED ACTION

Response to Amendment

1. This action is responsive to the amendment filed on 3 September 2003. No claims were amended and no new claims were added. Claims 2, 3, 6-15, 17-44, 46-54 and 56-60 are pending in the application.
2. Based on the applicant's amendment, the objection to the abstract is withdrawn.

Response to Arguments

3. Applicant's arguments, filed on 3 September 2003, with respect to claims 2 and 6 have been fully considered and are persuasive. The rejections of claims 2 and 6 have been withdrawn. The objections to claims 3, 7, 8 and 13-15 are also withdrawn.

Allowable Subject Matter

4. Claims 2, 3, 6-15, 17-44, 46-54 and 56-60 allowed.
5. The following is a statement of reasons for the indication of allowable subject matter:

Referring to claims 2, 3 and 13-15, the prior art does not disclose the combination of all the limitations of the claimed method. The prior art does not disclose a switching method utilizing a single controllable polarization rotating medium and a single polarizing beam splitter, where the input beam passes through the controllable

polarization rotating medium prior to being split into two beam components of different linear polarization states.

Referring to claims 6-8, the prior art does not disclose the combination of all the limitations of the claimed invention. The prior art does not disclose the splitting of the input beam into two beam components of different polarizations by a polarizing beam splitter, then passing the two beam components of different polarizations through a controllable polarization rotating medium before directing the beam components back on to the polarizing beam splitting surface.

Referring to claims 9 and 56, the prior art does not disclose all the limitations of the claimed method, including providing incidence of the split beam components of the input beam into a controllable polarization rotating medium operable to selectively affect polarization of each of the beam components, with an incidence angle other than 90 degrees.

Referring to claims 10-12, the prior art does not disclose all the limitations of the claimed method, including the medium being operated to provide a desired difference in phase delay in a range $0 - \lambda/2$ between two principal axes of the medium, thereby enabling to obtain desirable partition between the two output channels.

Referring to claim 13, the prior art does not disclose all the limitations of the claimed method, including the medium being selected to compensate for a hysteresis phenomenon occurring in the medium.

Referring to claim 14, the prior art does not disclose all the limitations of the claimed method, including an electrostatic field applied to the medium is selected so as

to fit phases of the beam components passing therethrough, thereby compensating for a phase shift caused by beam reflection effects during the beam propagation.

Referring to claim 15, the prior art does not disclose all the limitations of the claimed method, including an electrostatic field applied to the medium such as to cause a difference of $\lambda/2$ in phase delay between the split beam components of different polarizations, the method thereby enabling to reduce switching differential voltage requirements.

Referring to claims 26, 17-19, 24, 27-30, 37, 46 and 58, the prior art does not disclose all the limitations of the claimed method, including the controllable polarization rotating medium comprises two elements made of a polarization rotating material, and the beam directing means comprises two retro-reflective elements associated with the two polarization rotating elements, respectively, so as to reflect the beam components of different polarizations of the input beam towards the polarization rotating elements, and reflect the beams passed through the polarization rotating elements onto the polarizing beam splitting surface.

Referring to claims 31-36, 38 and 59, the prior art does not disclose all the limitations of the claimed method, including the beam directing means at least partly incorporated within the controllable polarization rotating medium.

Referring to claims 39 and 60, the prior art does not disclose all the limitations of the claimed method, including the polarizing beam splitting surface is a surface of a polarizing cubic beam splitter, which has three truncated corners forming three locally adjacent facets, such that the intermediate facet intercepts with a plane of the polarizing

beam splitting surface, the polarization rotating means being in the form of a plate accommodated at the intermediate facet outside of the beam splitter and having a reflective surface.

Referring to claims 49-50, the prior art does not disclose all the limitations of the claimed method, including the two output channels of the first switch device are two input channels, respectively, of the second and third switch devices, one of the output channels of the second switch device and one of the output channels of the third switch device being blocked to prevent light output therethrough, light signals collected at unblocked output channels of the second and third switch devices being thereby characterized by reduced crosstalk.

Referring to claims 57, 20-23, 25, 40-42, 47, 48 and 51-54, the prior art does not disclose all the limitations of the claimed method, including the medium being selected from the group consisting of lithium niobate and materials exhibiting a quadratic electro-optic effect.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin S Wood whose telephone number is (703) 605-5296. The examiner can normally be reached on Monday-Thursday (7am - 5:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B Bovernick can be reached on (703) 308-4819. The fax phone

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number for the organization where this application or proceeding is assigned is (703)
872-9306.

Any inquiry of a general nature or relating to the status of this application or
proceeding should be directed to the receptionist whose telephone number is (703) 307-
0956.

KSW

Brian Healy